



# SEQUENCE LISTING

<110> Bostein, et al.

<120> Basal Markers in Breast Cancer and Related Reagents  
Uses Thereof

<130> 2002850-0024

<140> 09/916,849

<141> 2001-07-26

<160> 15

<170> PatentIn Ver. 2.1

<210> 1

<211> 829

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Sequence of  
Cadherin 3

<400> 1

Met Gly Leu Pro Arg Gly Pro Leu Ala Ser Leu Leu Leu Leu Gln Val  
1 5 10 15

Cys Trp Leu Gln Cys Ala Ala Ser Glu Pro Cys Arg Ala Val Phe Arg  
20 25 30

Glu Ala Glu Val Thr Leu Glu Ala Gly Gly Ala Glu Gln Glu Pro Gly  
35 40 45

Gln Ala Leu Gly Lys Val Phe Met Gly Cys Pro Gly Gln Glu Pro Ala  
50 55 60

Leu Phe Ser Thr Asp Asn Asp Asp Phe Thr Val Arg Asn Gly Glu Thr  
65 70 75 80

Val Gln Glu Arg Arg Ser Leu Lys Glu Arg Asn Pro Leu Lys Ile Phe  
85 90 95

Pro Ser Lys Arg Ile Leu Arg Arg His Lys Arg Asp Trp Val Val Ala  
100 105 110

Pro Ile Ser Val Pro Glu Asn Gly Lys Gly Pro Phe Pro Gln Arg Leu

115		120		125
Asn Gln Leu Lys Ser Asn Lys Asp Arg Asp Thr Lys Ile Phe Tyr Ser				
130		135		140
Ile Thr Gly Pro Gly Ala Asp Ser Pro Pro Glu Gly Val Phe Ala Val				
145		150		155
				160
Glu Lys Glu Thr Gly Trp Leu Leu Leu Asn Lys Pro Leu Asp Arg Glu				
		165		170
				175
Glu Ile Ala Lys Tyr Glu Leu Phe Gly His Ala Val Ser Glu Asn Gly				
		180		185
				190
Ala Ser Val Glu Asp Pro Met Asn Ile Ser Ile Ile Val Thr Asp Gln				
		195		200
				205
Asn Asp His Lys Pro Lys Phe Thr Gln Asp Thr Phe Arg Gly Ser Val				
		210		215
				220
Leu Glu Gly Val Leu Pro Gly Thr Ser Val Met Gln Val Thr Ala Thr				
		225		230
				235
				240
Asp Glu Asp Asp Ala Ile Tyr Thr Tyr Asn Gly Val Val Ala Tyr Ser				
		245		250
				255
Ile His Ser Gln Glu Pro Lys Asp Pro His Asp Leu Met Phe Thr Ile				
		260		265
				270
His Arg Ser Thr Gly Thr Ile Ser Val Ile Ser Ser Gly Leu Asp Arg				
		275		280
				285
Glu Lys Val Pro Glu Tyr Thr Leu Thr Ile Gln Ala Thr Asp Met Asp				
		290		295
				300
Gly Asp Gly Ser Thr Thr Thr Ala Val Ala Val Val Glu Ile Leu Asp				
		305		310
				315
				320
Ala Asn Asp Asn Ala Pro Met Phe Asp Pro Gln Lys Tyr Glu Ala His				
		325		330
				335
Val Pro Glu Asn Ala Val Gly His Glu Val Gln Arg Leu Thr Val Thr				
		340		345
				350
Asp Leu Asp Ala Pro Asn Ser Pro Ala Trp Arg Ala Thr Tyr Leu Ile				
		355		360
				365
Met Gly Gly Asp Asp Gly Asp His Phe Thr Ile Thr Thr His Pro Glu				

370	375	380
Ser Asn Gln Gly Ile Leu Thr Thr Arg Lys Gly Leu Asp Phe Glu Ala		
385	390	395 400
Lys Asn Gln His Thr Leu Tyr Val Glu Val Thr Asn Glu Ala Pro Phe		
	405	410 415
Val Leu Lys Leu Pro Thr Ser Thr Ala Thr Ile Val Val His Val Glu		
	420	425 430
Asp Val Asn Glu Ala Pro Val Phe Val Pro Pro Ser Lys Val Val Glu		
	435	440 445
Val Gln Glu Gly Ile Pro Thr Gly Glu Pro Val Cys Val Tyr Thr Ala		
	450	455 460
Glu Asp Pro Asp Lys Glu Asn Gln Lys Ile Ser Tyr Arg Ile Leu Arg		
465	470	475 480
Asp Pro Ala Gly Trp Leu Ala Met Asp Pro Asp Ser Gly Gln Val Thr		
	485	490 495
Ala Val Gly Thr Leu Asp Arg Glu Asp Glu Gln Phe Val Arg Asn Asn		
	500	505 510
Ile Tyr Glu Val Met Val Leu Ala Met Asp Asn Gly Ser Pro Pro Thr		
	515	520 525
Thr Gly Thr Gly Thr Leu Leu Leu Thr Leu Ile Asp Val Asn Asp His		
	530	535 540
Gly Pro Val Pro Glu Pro Arg Gln Ile Thr Ile Cys Asn Gln Ser Pro		
545	550	555 560
Val Arg His Val Leu Asn Ile Thr Asp Lys Asp Leu Ser Pro His Thr		
	565	570 575
Ser Pro Phe Gln Ala Gln Leu Thr Asp Asp Ser Asp Ile Tyr Trp Thr		
	580	585 590
Ala Glu Val Asn Glu Glu Gly Asp Thr Val Val Leu Ser Leu Lys Lys		
	595	600 605
Phe Leu Lys Gln Asp Thr Tyr Asp Val His Leu Ser Leu Ser Asp His		
	610	615 620
Gly Asn Lys Glu Gln Leu Thr Val Ile Arg Ala Thr Val Cys Asp Cys		

625		630		635		640
His Gly His Val Glu Thr Cys Pro Gly Pro Trp Lys Gly Gly Phe Ile						
	645		650		655	
Leu Pro Val Leu Gly Ala Val Leu Ala Leu Leu Phe Leu Leu Leu Val						
	660		665		670	
Leu Leu Leu Leu Val Arg Lys Lys Arg Lys Ile Lys Glu Pro Leu Leu						
	675		680		685	
Leu Pro Glu Asp Asp Thr Arg Asp Asn Val Phe Tyr Tyr Gly Glu Glu						
	690		695		700	
Gly Gly Gly Glu Glu Asp Gln Asp Tyr Asp Ile Thr Gln Leu His Arg						
705		710		715		720
Gly Leu Glu Ala Arg Pro Glu Val Val Leu Arg Asn Asp Val Ala Pro						
	725		730		735	
Thr Ile Ile Pro Thr Pro Met Tyr Arg Pro Arg Pro Ala Asn Pro Asp						
	740		745		750	
Glu Ile Gly Asn Phe Ile Ile Glu Asn Leu Lys Ala Ala Asn Thr Asp						
	755		760		765	
Pro Thr Ala Pro Pro Tyr Asp Thr Leu Leu Val Phe Asp Tyr Glu Gly						
	770		775		780	
Ser Gly Ser Asp Ala Ala Ser Leu Ser Ser Leu Thr Ser Ser Ala Ser						
785		790		795		800
Asp Gln Asp Gln Asp Tyr Asp Tyr Leu Asn Glu Trp Gly Ser Arg Phe						
	805		810		815	
Lys Lys Leu Ala Asp Met Tyr Gly Gly Gly Glu Asp Asp						
	820		825			

<210> 2

<211> 582

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Matrix  
Metalloproteinase

<400> 2

Met	Ser	Pro	Ala	Pro	Arg	Pro	Pro	Arg	Cys	Leu	Leu	Leu	Pro	Leu	Leu
1				5					10					15	
Thr	Leu	Gly	Thr	Ala	Leu	Ala	Ser	Leu	Gly	Ser	Ala	Gln	Ser	Ser	Ser
			20					25					30		
Phe	Ser	Pro	Glu	Ala	Trp	Leu	Gln	Gln	Tyr	Gly	Tyr	Leu	Pro	Pro	Gly
		35					40					45			
Asp	Leu	Arg	Thr	His	Thr	Gln	Arg	Ser	Pro	Gln	Ser	Leu	Ser	Ala	Ala
	50					55					60				
Ile	Ala	Ala	Met	Gln	Lys	Phe	Tyr	Gly	Leu	Gln	Val	Thr	Gly	Lys	Ala
65					70					75					80
Asp	Ala	Asp	Thr	Met	Lys	Ala	Met	Arg	Arg	Pro	Arg	Cys	Gly	Val	Pro
				85					90					95	
Asp	Lys	Phe	Gly	Ala	Glu	Ile	Lys	Ala	Asn	Val	Arg	Arg	Lys	Arg	Tyr
		100						105					110		
Ala	Ile	Gln	Gly	Leu	Lys	Trp	Gln	His	Asn	Glu	Ile	Thr	Phe	Cys	Ile
		115					120					125			
Gln	Asn	Tyr	Thr	Pro	Lys	Val	Gly	Glu	Tyr	Ala	Thr	Tyr	Glu	Ala	Ile
	130					135						140			
Arg	Lys	Ala	Phe	Arg	Val	Trp	Glu	Ser	Ala	Thr	Pro	Leu	Arg	Phe	Arg
145					150					155					160
Glu	Val	Pro	Tyr	Ala	Tyr	Ile	Arg	Glu	Gly	His	Glu	Lys	Gln	Ala	Asp
				165					170					175	
Ile	Met	Ile	Phe	Phe	Ala	Glu	Gly	Phe	His	Gly	Asp	Ser	Thr	Pro	Phe
			180					185					190		
Asp	Gly	Glu	Gly	Gly	Phe	Leu	Ala	His	Ala	Tyr	Phe	Pro	Gly	Pro	Asn
		195					200					205			
Ile	Gly	Gly	Asp	Thr	His	Phe	Asp	Ser	Ala	Glu	Pro	Trp	Thr	Val	Arg
	210					215					220				
Asn	Glu	Asp	Leu	Asn	Gly	Asn	Asp	Ile	Phe	Leu	Val	Ala	Val	His	Glu
225					230					235					240
Leu	Gly	His	Ala	Leu	Gly	Leu	Glu	His	Ser	Ser	Asp	Pro	Ser	Ala	Ile
				245					250					255	

Met	Ala	Pro	Phe	Tyr	Gln	Trp	Met	Asp	Thr	Glu	Asn	Phe	Val	Leu	Pro	260	265	270
Asp	Asp	Asp	Arg	Arg	Gly	Ile	Gln	Gln	Leu	Tyr	Gly	Gly	Glu	Ser	Gly	275	280	285
Phe	Pro	Thr	Lys	Met	Pro	Pro	Gln	Pro	Arg	Thr	Thr	Ser	Arg	Pro	Ser	290	295	300
Val	Pro	Asp	Lys	Pro	Lys	Asn	Pro	Thr	Tyr	Gly	Pro	Asn	Ile	Cys	Asp	305	310	315
Gly	Asn	Phe	Asp	Thr	Val	Ala	Met	Leu	Arg	Gly	Glu	Met	Phe	Val	Phe	325	330	335
Lys	Glu	Arg	Trp	Phe	Trp	Arg	Val	Arg	Asn	Asn	Gln	Val	Met	Asp	Gly	340	345	350
Tyr	Pro	Met	Pro	Ile	Gly	Gln	Phe	Trp	Arg	Gly	Leu	Pro	Ala	Ser	Ile	355	360	365
Asn	Thr	Ala	Tyr	Glu	Arg	Lys	Asp	Gly	Lys	Phe	Val	Phe	Phe	Lys	Gly	370	375	380
Asp	Lys	His	Trp	Val	Phe	Asp	Glu	Ala	Ser	Leu	Glu	Pro	Gly	Tyr	Pro	385	390	395
Lys	His	Ile	Lys	Glu	Leu	Gly	Arg	Gly	Leu	Pro	Thr	Asp	Lys	Ile	Asp	405	410	415
Ala	Ala	Leu	Phe	Trp	Met	Pro	Asn	Gly	Lys	Thr	Tyr	Phe	Phe	Arg	Gly	420	425	430
Asn	Lys	Tyr	Tyr	Arg	Phe	Asn	Glu	Glu	Leu	Arg	Ala	Val	Asp	Ser	Glu	435	440	445
Tyr	Pro	Lys	Asn	Ile	Lys	Val	Trp	Glu	Gly	Ile	Pro	Glu	Ser	Pro	Arg	450	455	460
Gly	Ser	Phe	Met	Gly	Ser	Asp	Glu	Val	Phe	Thr	Tyr	Phe	Tyr	Lys	Gly	465	470	475
Asn	Lys	Tyr	Trp	Lys	Phe	Asn	Asn	Gln	Lys	Leu	Lys	Val	Glu	Pro	Gly	485	490	495
Tyr	Pro	Lys	Ser	Ala	Leu	Arg	Asp	Trp	Met	Gly	Cys	Pro	Ser	Gly	Gly	500	505	510

Arg Pro Asp Glu Gly Thr Glu Glu Glu Thr Glu Val Ile Ile Ile Glu  
515 520 525

Val Asp Glu Glu Gly Gly Gly Ala Val Ser Ala Ala Ala Val Val Leu  
530 535 540

Pro Val Leu Leu Leu Leu Val Leu Ala Val Gly Leu Ala Val Phe  
545 550 555 560

Phe Phe Arg Arg His Gly Thr Pro Arg Arg Leu Leu Tyr Cys Gln Arg  
565 570 575

Ser Leu Leu Asp Lys Val  
580

<210> 3

<211> 2923

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Cadherin EGF

LAG Seven Pass G-Type Receptor 2

<400> 3

Met Arg Ser Pro Ala Thr Gly Val Pro Leu Pro Thr Pro Pro Pro Pro  
1 5 10 15

Leu Leu Leu Leu Leu Leu Leu Leu Leu Pro Pro Pro Leu Leu Gly Asp  
20 25 30

Gln Val Gly Pro Cys Arg Ser Leu Gly Ser Arg Gly Arg Gly Ser Ser  
35 40 45

Gly Ala Cys Ala Pro Met Gly Trp Leu Cys Pro Ser Ser Ala Ser Asn  
50 55 60

Leu Trp Leu Tyr Thr Ser Arg Cys Arg Asp Ala Gly Thr Glu Leu Thr  
65 70 75 80

Gly His Leu Val Pro His His Asp Gly Leu Arg Val Trp Cys Pro Glu  
85 90 95

Ser Glu Ala His Ile Pro Leu Pro Pro Ala Pro Glu Gly Cys Pro Trp  
100 105 110

Ser Cys Arg Leu Leu Gly Ile Gly Gly His Leu Ser Pro Gln Gly Lys  
 115 120 125  
 Leu Thr Leu Pro Glu Glu His Pro Cys Leu Lys Ala Pro Arg Leu Arg  
 130 135 140  
 Cys Gln Ser Cys Lys Leu Ala Gln Ala Pro Gly Leu Arg Ala Gly Glu  
 145 150 155 160  
 Arg Ser Pro Glu Glu Ser Leu Gly Gly Arg Arg Lys Arg Asn Val Asn  
 165 170 175  
 Thr Ala Pro Gln Phe Gln Pro Pro Ser Tyr Gln Ala Thr Val Pro Glu  
 180 185 190  
 Asn Gln Pro Ala Gly Thr Pro Val Ala Ser Leu Arg Ala Ile Asp Pro  
 195 200 205  
 Asp Glu Gly Glu Ala Gly Arg Leu Glu Tyr Thr Met Asp Ala Leu Phe  
 210 215 220  
 Asp Ser Arg Ser Asn Gln Phe Phe Ser Leu Asp Pro Val Thr Gly Ala  
 225 230 235 240  
 Val Thr Thr Ala Glu Glu Leu Asp Arg Glu Thr Lys Ser Thr His Val  
 245 250 255  
 Phe Arg Val Thr Ala Gln Asp His Gly Met Pro Arg Arg Ser Ala Leu  
 260 265 270  
 Ala Thr Leu Thr Ile Leu Val Thr Asp Thr Asn Asp His Asp Pro Val  
 275 280 285  
 Phe Glu Gln Gln Glu Tyr Lys Glu Ser Leu Arg Glu Asn Leu Glu Val  
 290 295 300  
 Gly Tyr Glu Val Leu Thr Val Arg Ala Thr Asp Gly Asp Ala Pro Pro  
 305 310 315 320  
 Asn Ala Asn Ile Leu Tyr Arg Leu Leu Glu Gly Ser Gly Gly Ser Pro  
 325 330 335  
 Ser Glu Val Phe Glu Ile Asp Pro Arg Ser Gly Val Ile Arg Thr Arg  
 340 345 350  
 Gly Pro Val Asp Arg Glu Glu Val Glu Ser Tyr Gln Leu Thr Val Glu  
 355 360 365



Ala Ser Asp Gln Gly Arg Asp Pro Gly Pro Arg Ser Thr Thr Ala Ala  
 370 375 380

Val Phe Leu Ser Val Glu Asp Asp Asn Asp Asn Ala Pro Gln Phe Ser  
 385 390 395 400

Glu Lys Arg Tyr Val Val Gln Val Arg Glu Asp Val Thr Pro Gly Ala  
 405 410 415

Pro Val Leu Arg Val Thr Ala Ser Asp Arg Asp Lys Gly Ser Asn Ala  
 420 425 430

Val Val His Tyr Ser Ile Met Ser Gly Asn Ala Arg Gly Gln Phe Tyr  
 435 440 445

Leu Asp Ala Gln Thr Gly Ala Leu Asp Val Val Ser Pro Leu Asp Tyr  
 450 455 460

Glu Thr Thr Lys Glu Tyr Thr Leu Arg Val Arg Ala Gln Asp Gly Gly  
 465 470 475 480

Arg Pro Pro Leu Ser Asn Val Ser Gly Leu Val Thr Val Gln Val Leu  
 485 490 495

Asp Ile Asn Asp Asn Ala Pro Ile Phe Val Ser Thr Pro Phe Gln Ala  
 500 505 510

Thr Val Leu Glu Ser Val Pro Leu Gly Tyr Leu Val Leu His Val Gln  
 515 520 525

Ala Ile Asp Ala Asp Ala Gly Asp Asn Ala Arg Leu Glu Tyr Arg Leu  
 530 535 540

Ala Gly Val Gly His Asp Phe Pro Phe Thr Ile Asn Asn Gly Thr Gly  
 545 550 555 560

Trp Ile Ser Val Ala Ala Glu Leu Asp Arg Glu Glu Val Asp Phe Tyr  
 565 570 575

Ser Phe Gly Val Glu Ala Arg Asp His Gly Thr Pro Ala Leu Thr Ala  
 580 585 590

Ser Ala Ser Val Ser Val Thr Val Leu Asp Val Asn Asp Asn Asn Pro  
 595 600 605

Thr Phe Thr Gln Pro Glu Tyr Thr Val Arg Leu Asn Glu Asp Ala Ala  
 610 615 620

Val Gly Thr Ser Val Val Thr Val Ser Ala Val Asp Arg Asp Ala His			
625	630	635	640
Ser Val Ile Thr Tyr Gln Ile Thr Ser Gly Asn Thr Arg Asn Arg Phe			
	645	650	655
Ser Ile Thr Ser Gln Ser Gly Gly Gly Leu Val Ser Leu Ala Leu Pro			
	660	665	670
Leu Asp Tyr Lys Leu Glu Arg Gln Tyr Val Leu Ala Val Thr Ala Ser			
	675	680	685
Asp Gly Thr Arg Gln Asp Thr Ala Gln Ile Val Val Asn Val Thr Asp			
	690	695	700
Ala Asn Thr His Arg Pro Val Phe Gln Ser Ser His Tyr Thr Val Asn			
705	710	715	720
Val Asn Glu Asp Arg Pro Ala Gly Thr Thr Val Val Leu Ile Ser Ala			
	725	730	735
Thr Asp Glu Asp Thr Gly Glu Asn Ala Arg Ile Thr Tyr Phe Met Glu			
	740	745	750
Asp Ser Ile Pro Gln Phe Arg Ile Asp Ala Asp Thr Gly Ala Val Thr			
	755	760	765
Thr Gln Ala Glu Leu Asp Tyr Glu Asp Gln Val Ser Tyr Thr Leu Ala			
	770	775	780
Ile Thr Ala Arg Asp Asn Gly Ile Pro Gln Lys Ser Asp Thr Thr Tyr			
785	790	795	800
Leu Glu Ile Leu Val Asn Asp Val Asn Asp Asn Ala Pro Gln Phe Leu			
	805	810	815
Arg Asp Ser Tyr Gln Gly Ser Val Tyr Glu Asp Val Pro Pro Phe Thr			
	820	825	830
Ser Val Leu Gln Ile Ser Ala Thr Asp Arg Asp Ser Gly Leu Asn Gly			
	835	840	845
Arg Val Phe Tyr Thr Phe Gln Gly Gly Asp Asp Gly Asp Gly Asp Phe			
	850	855	860
Ile Val Glu Ser Thr Ser Gly Ile Val Arg Thr Leu Arg Arg Leu Asp			
865	870	875	880

Arg	Glu	Asn	Val	Ala	Gln	Tyr	Val	Leu	Arg	Ala	Tyr	Ala	Val	Asp	Lys	885	890	895	
Gly	Met	Pro	Pro	Ala	Arg	Thr	Pro	Met	Glu	Val	Thr	Val	Thr	Val	Leu	900	905	910	
Asp	Val	Asn	Asp	Asn	Pro	Pro	Val	Phe	Glu	Gln	Asp	Glu	Phe	Asp	Val	915	920	925	
Phe	Val	Glu	Glu	Asn	Ser	Pro	Ile	Gly	Leu	Ala	Val	Ala	Arg	Val	Thr	930	935	940	
Ala	Thr	Asp	Pro	Asp	Glu	Gly	Thr	Asn	Ala	Gln	Ile	Met	Tyr	Gln	Ile	945	950	955	960
Val	Glu	Gly	Asn	Ile	Pro	Glu	Val	Phe	Gln	Leu	Asp	Ile	Phe	Ser	Gly	965	970	975	
Glu	Leu	Thr	Ala	Leu	Val	Asp	Leu	Asp	Tyr	Glu	Asp	Arg	Pro	Glu	Tyr	980	985	990	
Val	Leu	Val	Ile	Gln	Ala	Thr	Ser	Ala	Pro	Leu	Val	Ser	Arg	Ala	Thr	995	1000	1005	
Val	His	Val	Arg	Leu	Leu	Asp	Arg	Asn	Asp	Asn	Pro	Pro	Val	Leu	Gly	1010	1015	1020	
Asn	Phe	Glu	Ile	Leu	Phe	Asn	Asn	Tyr	Val	Thr	Asn	Arg	Ser	Ser	Ser	1025	1030	1035	1040
Phe	Pro	Gly	Gly	Ala	Ile	Gly	Arg	Val	Pro	Ala	His	Asp	Pro	Asp	Ile	1045	1050	1055	
Ser	Asp	Ser	Leu	Thr	Tyr	Ser	Phe	Glu	Arg	Gly	Asn	Glu	Leu	Ser	Leu	1060	1065	1070	
Val	Leu	Leu	Asn	Ala	Ser	Thr	Gly	Glu	Leu	Lys	Leu	Ser	Arg	Ala	Leu	1075	1080	1085	
Asp	Asn	Asn	Arg	Pro	Leu	Glu	Ala	Ile	Met	Ser	Val	Leu	Val	Ser	Asp	1090	1095	1100	
Gly	Val	His	Ser	Val	Thr	Ala	Gln	Cys	Ala	Leu	Arg	Val	Thr	Ile	Ile	1105	1110	1115	1120
Thr	Asp	Glu	Met	Leu	Thr	His	Ser	Ile	Thr	Leu	Arg	Leu	Glu	Asp	Met	1125	1130	1135	

Ser Pro Glu Arg Phe Leu Ser Pro Leu Leu Gly Leu Phe Ile Gln Ala  
 1140 1145 1150  
 Val Ala Ala Thr Leu Ala Thr Pro Pro Asp His Val Val Val Phe Asn  
 1155 1160 1165  
 Val Gln Arg Asp Thr Asp Ala Pro Gly Gly His Ile Leu Asn Val Ser  
 1170 1175 1180  
 Leu Ser Val Gly Gln Pro Pro Gly Pro Gly Gly Gly Pro Pro Phe Leu  
 1185 1190 1195 1200  
 Pro Ser Glu Asp Leu Gln Glu Arg Leu Tyr Leu Asn Arg Ser Leu Leu  
 1205 1210 1215  
 Thr Ala Ile Ser Ala Gln Arg Val Leu Pro Phe Asp Asp Asn Ile Cys  
 1220 1225 1230  
 Leu Arg Glu Pro Cys Glu Asn Tyr Met Arg Cys Val Ser Val Leu Arg  
 1235 1240 1245  
 Phe Asp Ser Ser Ala Pro Phe Ile Ala Ser Ser Ser Val Leu Phe Arg  
 1250 1255 1260  
 Pro Ile His Pro Val Gly Gly Leu Arg Cys Arg Cys Pro Pro Gly Phe  
 1265 1270 1275 1280  
 Thr Gly Asp Tyr Cys Glu Thr Glu Val Asp Leu Cys Tyr Ser Arg Pro  
 1285 1290 1295  
 Cys Gly Pro His Gly Arg Cys Arg Ser Arg Glu Gly Gly Tyr Thr Cys  
 1300 1305 1310  
 Leu Cys Arg Asp Gly Tyr Thr Gly Glu His Cys Glu Val Ser Ala Arg  
 1315 1320 1325  
 Ser Gly Arg Cys Thr Pro Gly Val Cys Lys Asn Gly Gly Thr Cys Val  
 1330 1335 1340  
 Asn Leu Leu Val Gly Gly Phe Lys Cys Asp Cys Pro Ser Gly Asp Phe  
 1345 1350 1355 1360  
 Glu Lys Pro Tyr Cys Gln Val Thr Thr Arg Ser Phe Pro Ala His Ser  
 1365 1370 1375  
 Phe Ile Thr Phe Arg Gly Leu Arg Gln Arg Phe His Phe Thr Leu Ala  
 1380 1385 1390

Leu Ser Phe Ala Thr Lys Glu Arg Asp Gly Leu Leu Leu Tyr Asn Gly			
1395	1400	1405	
Arg Phe Asn Glu Lys His Asp Phe Val Ala Leu Glu Val Ile Gln Glu			
1410	1415	1420	
Gln Val Gln Leu Thr Phe Ser Ala Gly Glu Ser Thr Thr Thr Val Ser			
1425	1430	1435	1440
Pro Phe Val Pro Gly Gly Val Ser Asp Gly Gln Trp His Thr Val Gln			
	1445	1450	1455
Leu Lys Tyr Tyr Asn Lys Pro Leu Leu Gly Gln Thr Gly Leu Pro Gln			
	1460	1465	1470
Gly Pro Ser Glu Gln Lys Val Ala Val Val Thr Val Asp Gly Cys Asp			
1475	1480	1485	
Thr Gly Val Ala Leu Arg Phe Gly Ser Val Leu Gly Asn Tyr Ser Cys			
1490	1495	1500	
Ala Ala Gln Gly Thr Gln Gly Gly Ser Lys Lys Ser Leu Asp Leu Thr			
1505	1510	1515	1520
Gly Pro Leu Leu Leu Gly Gly Val Pro Asp Leu Pro Glu Ser Phe Pro			
	1525	1530	1535
Val Arg Met Arg Gln Phe Val Gly Cys Met Arg Asn Leu Gln Val Asp			
	1540	1545	1550
Ser Arg His Ile Asp Met Ala Asp Phe Ile Ala Asn Asn Gly Thr Val			
1555	1560	1565	
Pro Gly Cys Pro Ala Lys Lys Asn Val Cys Asp Ser Asn Thr Cys His			
1570	1575	1580	
Asn Gly Gly Thr Cys Val Asn Gln Trp Asp Ala Phe Ser Cys Glu Cys			
1585	1590	1595	1600
Pro Leu Gly Phe Gly Gly Lys Ser Cys Ala Gln Glu Met Ala Asn Pro			
	1605	1610	1615
Gln His Phe Leu Gly Ser Ser Leu Val Ala Trp His Gly Leu Ser Leu			
1620	1625	1630	
Pro Ile Ser Gln Pro Trp Tyr Leu Ser Leu Met Phe Arg Thr Arg Gln			
1635	1640	1645	

Ala Asp Gly Val Leu Leu Gln Ala Ile Thr Arg Gly Arg Ser Thr Ile			
1650	1655	1660	
Thr Leu Gln Leu Arg Glu Gly His Val Met Leu Ser Val Glu Gly Thr			
1665	1670	1675	1680
Gly Leu Gln Ala Ser Ser Leu Arg Leu Glu Pro Gly Arg Ala Asn Asp			
	1685	1690	1695
Gly Asp Trp His His Ala Gln Leu Ala Leu Gly Ala Ser Gly Gly Pro			
	1700	1705	1710
Gly His Ala Ile Leu Ser Phe Asp Tyr Gly Gln Gln Arg Ala Glu Gly			
	1715	1720	1725
Asn Leu Gly Pro Arg Leu His Gly Leu His Leu Ser Asn Ile Thr Val			
	1730	1735	1740
Gly Gly Ile Pro Gly Pro Ala Gly Gly Val Ala Arg Gly Phe Arg Gly			
1745	1750	1755	1760
Cys Leu Gln Gly Val Arg Val Ser Asp Thr Pro Glu Gly Val Asn Ser			
	1765	1770	1775
Leu Asp Pro Ser His Gly Glu Ser Ile Asn Val Glu Gln Gly Cys Ser			
	1780	1785	1790
Leu Pro Asp Pro Cys Asp Ser Asn Pro Cys Pro Ala Asn Ser Tyr Cys			
	1795	1800	1805
Ser Asn Asp Trp Asp Ser Tyr Ser Cys Ser Cys Asp Pro Gly Tyr Tyr			
	1810	1815	1820
Gly Asp Asn Cys Thr Asn Val Cys Asp Leu Asn Pro Cys Glu His Gln			
1825	1830	1835	1840
Ser Val Cys Thr Arg Lys Pro Ser Ala Pro His Gly Tyr Thr Cys Glu			
	1845	1850	1855
Cys Pro Pro Asn Tyr Leu Gly Pro Tyr Cys Glu Thr Arg Ile Asp Gln			
	1860	1865	1870
Pro Cys Pro Arg Gly Trp Trp Gly His Pro Thr Cys Gly Pro Cys Asn			
	1875	1880	1885
Cys Asp Val Ser Lys Gly Phe Asp Pro Asp Cys Asn Lys Thr Ser Gly			
1890	1895	1900	

Glu Cys His Cys Lys Glu Asn His Tyr Arg Pro Pro Gly Ser Pro Thr			
1905	1910	1915	1920
Cys Leu Leu Cys Asp Cys Tyr Pro Thr Gly Ser Leu Ser Arg Val Cys			
1925	1930	1935	
Asp Pro Glu Asp Gly Gln Cys Pro Cys Lys Pro Gly Val Ile Gly Arg			
1940	1945	1950	
Gln Cys Asp Arg Cys Asp Asn Pro Phe Ala Glu Val Thr Thr Asn Gly			
1955	1960	1965	
Cys Glu Val Asn Tyr Asp Ser Cys Pro Arg Ala Ile Glu Ala Gly Ile			
1970	1975	1980	
Trp Trp Pro Arg Thr Arg Phe Gly Leu Pro Ala Ala Ala Pro Cys Pro			
1985	1990	1995	2000
Lys Gly Ser Phe Gly Thr Ala Val Arg His Cys Asp Glu His Arg Gly			
2005	2010	2015	
Trp Leu Pro Pro Asn Leu Phe Asn Cys Thr Ser Ile Thr Phe Ser Glu			
2020	2025	2030	
Leu Lys Gly Phe Ala Glu Arg Leu Gln Arg Asn Glu Ser Gly Leu Asp			
2035	2040	2045	
Ser Gly Arg Ser Gln Gln Leu Ala Leu Leu Leu Arg Asn Ala Thr Gln			
2050	2055	2060	
His Thr Ala Gly Tyr Phe Gly Ser Asp Val Lys Val Ala Tyr Gln Leu			
2065	2070	2075	2080
Ala Thr Arg Leu Leu Ala His Glu Ser Thr Gln Arg Gly Phe Gly Leu			
2085	2090	2095	
Ser Ala Thr Gln Asp Val His Phe Thr Glu Asn Leu Leu Arg Val Gly			
2100	2105	2110	
Ser Ala Leu Leu Asp Thr Ala Asn Lys Arg His Trp Glu Leu Ile Gln			
2115	2120	2125	
Gln Thr Glu Gly Gly Thr Ala Trp Leu Leu Gln His Tyr Glu Ala Tyr			
2130	2135	2140	
Ala Ser Ala Leu Ala Gln Asn Met Arg His Thr Tyr Leu Ser Pro Phe			
2145	2150	2155	2160

Thr Ile Val Thr Pro Asn Ile Val Ile Ser Val Val Arg Leu Asp Lys			
2165	2170	2175	
Gly Asn Phe Ala Gly Ala Lys Leu Pro Arg Tyr Glu Ala Leu Arg Gly			
2180	2185	2190	
Glu Gln Pro Pro Asp Leu Glu Thr Thr Val Ile Leu Pro Glu Ser Val			
2195	2200	2205	
Phe Arg Glu Thr Pro Pro Val Val Arg Pro Ala Gly Pro Gly Glu Ala			
2210	2215	2220	
Gln Glu Pro Glu Glu Leu Ala Arg Arg Gln Arg Arg His Pro Glu Leu			
2225	2230	2235	2240
Ser Gln Gly Glu Ala Val Ala Ser Val Ile Ile Tyr Arg Thr Leu Ala			
2245	2250	2255	
Gly Leu Leu Pro His Asn Tyr Asp Pro Asp Lys Arg Ser Leu Arg Val			
2260	2265	2270	
Pro Lys Arg Pro Ile Ile Asn Thr Pro Val Val Ser Ile Ser Val His			
2275	2280	2285	
Asp Asp Glu Glu Leu Leu Pro Arg Ala Leu Asp Lys Pro Val Thr Val			
2290	2295	2300	
Gln Phe Arg Leu Leu Glu Thr Glu Glu Arg Thr Lys Pro Ile Cys Val			
2305	2310	2315	2320
Phe Trp Asn His Ser Ile Leu Val Ser Gly Thr Gly Gly Trp Ser Ala			
2325	2330	2335	
Arg Gly Cys Glu Val Val Phe Arg Asn Glu Ser His Val Ser Cys Gln			
2340	2345	2350	
Cys Asn His Met Thr Ser Phe Ala Val Leu Met Asp Val Ser Arg Arg			
2355	2360	2365	
Glu Asn Gly Glu Ile Leu Pro Leu Lys Thr Leu Thr Tyr Val Ala Leu			
2370	2375	2380	
Gly Val Thr Leu Ala Ala Leu Leu Leu Thr Phe Phe Phe Leu Thr Leu			
2385	2390	2395	2400
Leu Arg Ile Leu Arg Ser Asn Gln His Gly Ile Arg Arg Asn Leu Thr			
2405	2410	2415	



Ala Ala Leu Gly Leu Ala Gln Leu Val Phe Leu Leu Gly Ile Asn Gln			
2420	2425	2430	
Ala Asp Leu Pro Phe Ala Cys Thr Val Ile Ala Ile Leu Leu His Phe			
2435	2440	2445	
Leu Tyr Leu Cys Thr Phe Ser Trp Ala Leu Leu Glu Ala Leu His Leu			
2450	2455	2460	
Tyr Arg Ala Leu Thr Glu Val Arg Asp Val Asn Thr Gly Pro Met Arg			
2465	2470	2475	2480
Phe Tyr Tyr Met Leu Gly Trp Gly Val Pro Ala Phe Ile Thr Gly Leu			
2485	2490	2495	
Ala Val Gly Leu Asp Pro Glu Gly Tyr Gly Asn Pro Asp Phe Cys Trp			
2500	2505	2510	
Leu Ser Ile Tyr Asp Thr Leu Ile Trp Ser Phe Ala Gly Pro Val Ala			
2515	2520	2525	
Phe Ala Val Ser Met Ser Val Phe Leu Tyr Ile Leu Ala Ala Arg Ala			
2530	2535	2540	
Ser Cys Ala Ala Gln Arg Gln Gly Phe Glu Lys Lys Gly Pro Val Ser			
2545	2550	2555	2560
Gly Leu Gln Pro Ser Phe Ala Val Leu Leu Leu Leu Ser Ala Thr Trp			
2565	2570	2575	
Leu Leu Ala Leu Leu Ser Val Asn Ser Asp Thr Leu Leu Phe His Tyr			
2580	2585	2590	
Leu Phe Ala Thr Cys Asn Cys Ile Gln Gly Pro Phe Ile Phe Leu Ser			
2595	2600	2605	
Tyr Val Val Leu Ser Lys Glu Val Arg Lys Ala Leu Lys Leu Ala Cys			
2610	2615	2620	
Ser Arg Lys Pro Ser Pro Asp Pro Ala Leu Thr Thr Lys Ser Thr Leu			
2625	2630	2635	2640
Thr Ser Ser Tyr Asn Cys Pro Ser Pro Tyr Ala Asp Gly Arg Leu Tyr			
2645	2650	2655	
Gln Pro Tyr Gly Asp Ser Ala Gly Ser Leu His Ser Thr Ser Arg Ser			
2660	2665	2670	

Gly Lys Ser Gln Pro Ser Tyr Ile Pro Phe Leu Leu Arg Glu Glu Ser  
 2675 2680 2685

Ala Leu Asn Pro Gly Gln Gly Pro Pro Gly Leu Gly Asp Pro Gly Ser  
 2690 2695 2700

Leu Phe Leu Glu Gly Gln Asp Gln Gln His Asp Pro Asp Thr Asp Ser  
 2705 2710 2715 2720

Asp Ser Asp Leu Ser Leu Glu Asp Asp Gln Ser Gly Ser Tyr Ala Ser  
 2725 2730 2735

Thr His Ser Ser Asp Ser Glu Glu Glu Glu Glu Glu Glu Glu Glu  
 2740 2745 2750

Ala Ala Phe Pro Gly Glu Gln Gly Trp Asp Ser Leu Leu Gly Pro Gly  
 2755 2760 2765

Ala Glu Arg Leu Pro Leu His Ser Thr Pro Lys Asp Gly Gly Pro Gly  
 2770 2775 2780

Pro Gly Lys Ala Pro Trp Pro Gly Asp Phe Gly Thr Thr Ala Lys Glu  
 2785 2790 2795 2800

Ser Ser Gly Asn Gly Ala Pro Glu Glu Arg Leu Arg Glu Asn Gly Asp  
 2805 2810 2815

Ala Leu Ser Arg Glu Gly Ser Leu Gly Pro Leu Pro Gly Ser Ser Ala  
 2820 2825 2830

Gln Pro His Lys Gly Ile Leu Lys Lys Lys Cys Leu Pro Thr Ile Ser  
 2835 2840 2845

Glu Lys Ser Ser Leu Leu Arg Leu Pro Leu Glu Gln Cys Thr Gly Ser  
 2850 2855 2860

Ser Arg Gly Ser Ser Ala Ser Glu Gly Ser Arg Gly Gly Pro Pro Pro  
 2865 2870 2875 2880

Arg Pro Pro Pro Arg Gln Ser Leu Gln Glu Gln Leu Asn Gly Val Met  
 2885 2890 2895

Pro Ile Ala Met Ser Ile Lys Ala Gly Thr Val Asp Glu Asp Ser Ser  
 2900 2905 2910

Gly Ser Glu Phe Leu Phe Phe Asn Phe Leu His  
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Glu Gln Glu

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<211> 19  
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<220>  
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14

<400> 7  
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Phe Ala Glu

<210> 8  
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Gly Arg

<210> 9  
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Seven-Pass G-Type Receptor 2

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Trp His

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Asp Ser Gly Arg  
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Seven-Pass G-Type Receptor 2

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10

15

Glu

<210> 13

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15

Arg

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